Memo

Quality Control

| Work Order I Tuesday, July 22, 201 | | | *122 | 706* | | | | | | Page 1 |
|---|--|----------------------|--|--------------------------|---------------------------------------|-----|---------------|--------------------|------------------|------------------------------|
| Item ID: D350 Revision ID: Item Name: Bush | | | Accept | *N900 | 040 | 100 | k : | Setup Star Stoj | 171 | S1* S2* |
| Start Date: 7/21, Required Date: 7/21, Reference: | /14 Start Qty: 60.00 | | | Cust Item I Customer: | D: , | | | | | |
| Approvals: Pro | cess Plan: MLD | Date: 14-07-1 | 23 Tooling: | D: | ate: | | J | Run Star | ^1 V 1 | R1* |
| | • | • | | D | ate: | | | Sto | , *N | R2* |
| Sequence ID/ Work Center ID | Operation Description | | Set Up/ Run Hours | Tool ID | Tool # | | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
| Draw Nbr | Revision Nbr | | | | · · · · · · · · · · · · · · · · · · · | | | | | |
| D3501 | Rev A | | | | | 1 | DAS | | | |
| *100 *100* Hardinge Hardinge CNC Lathe Sma | Hardinge CNC LATH Memo II 1-TURN REV: | ÁS PER FOLIO FA650 & | 0.00 0.00 DWG D3501 ,FOLIO 2-DEBURR AS REQUIR | ED | | (| 02 -89 | IT only | 14-0 | 7-70 |
| 110 | QC2- Inspect parts of | machine FAI/FAIB | 0.00 | | | | AS 02 | | | |
| *110* QC Quality Control | Memo | | 0.00 | , | | 60- | -8 9 (| ET 19 | 4.07 W/14 | 70/08/05 |
| 120 | QC8- Inspect parts - s | econd check | 0.00 | | * - | | | | | DAS |
| *120* | Memo | | 0.00 | | | _ | 60 | | | 20 9-89 14-08-0 |

| DQA: | | | _ Date: | | | <u>-</u> | | | | | | | DART |
|-----------------------|----------------|-----------|-------------|-------|-----------|--------------------------------|-----|---------|----------------------------------|----------------|--------------|-------------------------|--------------------|
| QA Closed: | | | Date: | | | WORK ORDER NON | -CC | ONFO | RMANCE / UPDATE | | ork Order ur | odate only | AEROSPACE |
| QA CIOSCU. | | | Dute. | | | T DISCOSITION | | | ACA1 | | | | |
| Work Orde | er: | | | | | DISPOSITION | | | AGAI | יייי וכאוו | PARTMENT, | | |
| | • | | | | | Rework | | | Skid-tube Crosst | tube | | Water Jet | Engineering |
| Part N | lo. | | | | | Scrap | | | Machining Small | | - | d. Eng. Coor. | Quality |
| NCR N | ۷o. | | | | | Use-as-is Suspected Unapproved | | Therr | noforming Finis Large Fab Compo | ~ - | Rec/Sto | e/Packaging Supplier | Other |
| | | | | | | | | | r | | T | | |
| Root | | | | | Desc | cription of work order update | 1 | nitial | Action | | Sign & | | |
| Cause | | Date | Step | Qty | | or non-conformance | Ch | ief Eng | Description | | Date | Verification | QC Inspector |
| Design | | | | | | • | İ | | | | | | |
| Doc/Data | Ш | | | | | | | | | | | | |
| Equip/Tooling | \blacksquare | | | | | | | | | | | • | |
| Handling/Pre | | | · | | | | | | | | | | |
| Material - | | | | | , ´. | - | | | | | | | |
| Operator | | | | | | • | | | | | | | |
| Offset/Setup | | | | | j ; 5. | • | | | | | | | |
| Process | Н | | | , | | • | | | | | | | |
| Supplier | H | | | | İ | | | | | | | | |
| Training Transport | \vdash | | | | | | ļ | | | | | | |
| Unapproved | | | | | | , | | | , | | | <u> </u> | |
| 011444101.04 | | · | <u> </u> | l | | | FA | ULT CA | regory | | | | |
| Landi | ng (| Gear | | | | General | | | | | _ | | |
| | | Bending | | | | Bend | | Folio/F | Program | | Outside Dim | ensions | Pressure/Forced |
| | | Centre N | ot Concer | ntric | i. Vav | BOM/Route | | Grain | 4 | | Over/Under | tolerance | Set-up |
| | | Cracks | | | | Broken/Damage/Defect | | Hardwa | are | _ | Part Incorre | ci _ | Temperature/Cure |
| | | Crimp/Ki | nk/Ripple | /Wave | | Burrs | | Inspect | ion Incomplete/Unqualified | | Part Lost/Mi | ssing | Weld |
| 2C | | Cuffs | | | | Contamination | | Instruc | tions Incomplete/Unclear | | Part Moved | L | Wrong Stock Pulled |
| 133 133 | | Crushing | | | | Countersink | L | | gned/off center | | Positioned V | _ | - 7 . |
| | | Heat Tre | at | | | Cut Too Short | | Mislab | | | Power Loss/ | Surge | Other |
| | | Inspectio | n Strip in | Tube | | Drawing | | Misrea | | | | | |
| | | Marks/Cl | hatter | | | Drill Holes | | Off-set | | | | · | |
| | _ | 4 | Sequence | | | Finish | | 4 | Calibration - | • | | | |
| ! | | Wave/Tv | vist in Tub | oe | | Fit/Function | | Out of | Sequence | | | | |

| Work | Order | ID | 122706 |
|------|-------|----|--------|
|------|-------|----|--------|

122706

Page 2

Tuesday, July 22, 2014 8:44:15 AM Accept *N900040100* **Item ID:** D3501-1 Setup Start **Revision ID:** Stop **Item Name:** Bushing *60* **Start Qty:** 60.00 **Start Date:** 7/21/14 **Cust Item ID:** Required Date: 7/21/14 Req'd Qty: 60.00 *60* **Customer:** Reference: Start Run **Tooling:** Process Plan: Date: Approvals: Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Operation **Tool ID** Accept Reject Reject Set Up/ Tool # Plan Insp. Number Work Center ID Description **Run Hours** Code Qty Qty Stamp Identify as per dwg & Stock Location: 5TOHLS 130 0.00 DAS AUG 0 5 2014 *120* 28 Packaging 0.00 Memo Packaging QC21- Final Inspection - Work Order Release 140 0.00 *140* QC 0.00 Memo Quality Control

| DQA: | | | Date: | | | . WORK ORDER NON | ~ | NEO | DRAABICE / LIDDAT | | | | DAF | 2T |
|---------------|----------|-----------|-------------|--------|----------|------------------------------|----------|----------|--------------------------------|------------|---------------|--|----------------|-------|
| QA Closed: | | | Date: | | | WORK ORDER NON | -((| JNFUI | RIVIANCE / UPDAT | | ork Order up | date only | AEROSP | ACE |
| Work Orde | \r· | | | | | DISPOSITION | | | AG | GAINST DE | PARTMENT | PROCESS | | |
| Work Orue | - | | | | | Rework | 1 | | Skid-tube Cro | osstube | | Water Jet | Engineering | |
| Part N | lo. | | | | | Scrap | | | | nall Fab | Pro | d. Eng. Coor. | Quality | |
| | - | | | | | Use-as-is | | Thern | noforming Fi | nishing | Rec/Stor | e/Packaging[| Other | |
| NCR N | ۰۱٥۰ | | | | | Suspected Unapproved | | | Large Fab Com | nposite | | Supplier | | |
| Root | | | | | Desci | ription of work order update | ı | nitial | Action | | Sign & | | | |
| Cause | | Date | Step | Qty | | or non-conformance | Ch | ief Eng | Description | 1 | Date | Verification | n QC Inspect | tor |
| Design | | | | | | | | | | | | | | |
| Doc/Data | | | | | | | | | | | 1 | | | |
| Equip/Tooling | | | | • " | | | | | | | | | | |
| Handling/Pre | | | | | | | | | | | | | | |
| Material | | | , | | | | | | | | | | | |
| Operator | | | | | Ì | | | | | | | | | |
| Offset/Setup | | | | | | | | | | | ! | | 1 | |
| Process | Щ | | Ì | ŀ | | | | | | | | | | |
| Supplier | | | | | | | | | | | | | | |
| Training | | | | | | | | | | | | | | |
| Transport. | Щ | | | | | | | | | | | • | | |
| Unapproved | | | <u></u> | | <u> </u> | | | | TECODY | | | - | | |
| | | | | | | | FAI | ULI CA | TEGORY | | | | . | |
| Landi | | 1 | | | | General | | احمانمات | Program | | Outside Dim | ensions [| Pressure/Force | d |
| | \vdash | Bending | | | | Bend | \vdash | Grain | riogram | - - | Over/Under | 1 | Set-up | - |
| | نط | Centre N | ot Concer | ntric | <u> </u> | BOM/Route | - | Hardwa | aro. | <u> </u> | Part Incorred | The state of the s | Temperature/C | ure |
| | - | Cracks | 1./6: 1 | | \vdash | Broken/Damage/Defect | - | 4 | ire ion Incomplete/Unqualif | fied — | Part Lost/Mi | | Weld | |
| | <u> </u> | Crimp/Ki | nk/Rippie | e/wave | - | Burrs | \vdash | 4 ' | tions Incomplete/Unclea | | Part Moved | 336 | Wrong Stock Pu | ılled |
| | | Cuffs | | | \vdash | Contamination Countersink | \vdash | 4 | gned/off center | " | Positioned V | ا Vrong | | |
| ļ | _ | Crushing | | | - | Countersink Cut Too Short | - | Mislabe | _ | | Power Loss/ | | Other | |
| | - | Heat Trea | | Tuba | \vdash | Drawing | \vdash | Misrea | | L | 1. 00. 2033/ | | | |
| | \vdash | Inspectio | | iube | \vdash | Drill Holes | \vdash | Off-set | | | | | | |
| | \vdash | Marks/Cl | | | <u> </u> | Finish | \vdash | 4 | Calibration | | | | | |
| | \vdash | Turning S | • | | \vdash | Fit/Function | \vdash | 4 | Sequence | | | | | |
| | 1 | Wave/Tv | vist in Tur | Je | | Fit/ FullCuoti | | Jour of | Jequence | | | · · · · · · · · · · · · · · · · · · · | | |

Picklist Print

Tuesday, July 22, 2014 8:44:15 AM

Work Order ID: 122706

122706

Parent Item:

D3501-1

D3501-1

Parent Item Name: Bushing

Start Date: 7/21/14

Required Date: 7/21/14

Page 1

Start Qty: 60.00

Required Qty: 60.00

Comments:

IPP Rev:A New Issue 06-05-09 JLM

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|--------------------|--------|
| M303R0.750 | | Purchased | No | | | 100 | f | 48.0760 | 0.0791 | 5 | | | |
| *M303R0 303 Round Bar 0.750 | 750* | | | | 12764 | 7 | | | ** | 7 | T (| 4 - o ⁻ | 7-70 |
| * | | | | Location | <u>l</u> | Loc | <u>Oty</u> | Loc Code | | | | | |
| | | | | MAT028 | | 48 | 3.076 | | | | | | |
| ¥ | | | | | m127464 | 46 | 5.782 | | _ | | _ | | |
| | | | | | m129366 | 1 | 294 | | | | _ | | |

| DQA: | | | Date: | | | • • • • • • • • • • • • • • • • • • • | | | | | | | TOACT |
|---------------|--------------|-------------|-------------|-------|-------------|---------------------------------------|-----|---------|--------------------|---------------------------------------|---------------|---------------|--------------------|
| | | | | | | WORK ORDER NON- | -CC | ONFO | RMANCE / UP | | | _ | AEROSPACE |
| QA Closed: | | • | Date: | | | | | | | | ork Order up | date only | |
| Work Orde | ar. | | | | | DISPOSITION | | | | AGAINST D | EPARTMENT, | /PROCESS | |
| WOIK OIU | = 1 . - | | | | | Rework | ıl | | Skid-tube | Crosstube | ٦ | Water Jet | Engineering |
| Part N | lo. | | | | | Scrap | | | Machining | Small Fab | Pro | d. Eng. Coor. | Quality |
| | - | | | | | Use-as-is | 1 | Therr | moforming | Finishing | Rec/Sto | e/Packaging | Other |
| NCR N | ۱o. <u>-</u> | | | | | Suspected Unapproved | | | Large Fab | Composite |] | Supplier | |
| Root | | | | | Desc | ription of work order update | | Initial | Actio | on | Sign & | | |
| Cause | | Date | Step | Qty | | or non-conformance | Ch | ief Eng | Descri | ption | Date | Verification | QC Inspector |
| Design | | | | | | | | | | | | | · |
| Doc/Data | | | | | • | | | | | | | | |
| Equip/Tooling | | | | | ; | | | | | | | • | |
| Handling/Pre | | | | | | • | | | | | | | |
| Material | | | | | | | | | | | | | |
| Operator | Ш | | | | | | | | | | | | |
| Offset/Setup | Н | | | | | | | | | | | | |
| Process | Н | | | | | | | | | | | | |
| Supplier | Н | | | | | | | | 1 | | | | |
| Training | Н | | | | | | | | | | | | |
| Transport | Н | | | | , | | | | | | | | |
| Unapproved | | | 1 | | <u>!</u> | ······ | FA | ULT CA | TEGORY | | | | L |
| Landi | ng G | iear | | - | | General | | | | · · · · · · · · · · · · · · · · · · · | | | |
| Lana | 一 | Bending | | | | Bend | | Folio/F | Program | Γ | Outside Dim | ensions | Pressure/Forced |
| | H | Centre No | ot Concer | ntric | | BOM/Route | | Grain | J | | Over/Under | tolerance | Set-up |
| | Н | Cracks | | | | Broken/Damage/Defect | Г | Hardwa | are | | Part Incorred | ci [| Temperature/Cure |
| | - | Crimp/Kir | nk/Ripple | /Wave | | Burrs | | Inspect | tion Incomplete/Un | qualified | Part Lost/Mi | ssing | Weld |
| | \vdash | Cuffs | | | | Contamination | | Instruc | tions Incomplete/U | nclear | Part Moved | | Wrong Stock Pulled |
| | П | Crushing | | | | Countersink | | Misali | gned/off center | | Positioned V | Vrong _ | _ |
| | - | Heat Trea | at · | | | Cut Too Short | | Mislab | eled | | Power Loss/ | Surge | Other |
| | | Inspectio | n Strip in | Tube | | Drawing | | Misrea | d | | | | |
| | | Marks/Ch | natter | | | Drill Holes | | Off-set | | | | | |
| | | Turning S | equence | | | Finish | | Out of | Calibration | | | | |
| | | Wave/Tw | ist in Tul | эе | | Fit/Function | | Out of | Sequence | | | | |

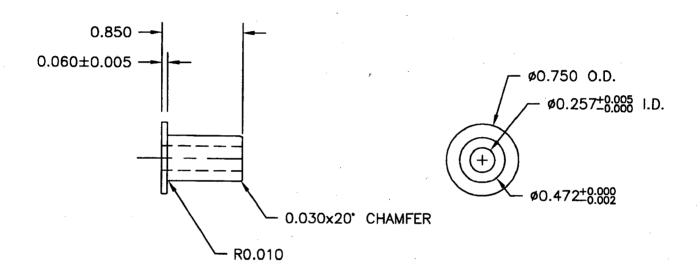
| DART AEROSPACE LTD | Work Order: | 122706 |
|------------------------------|--------------|-------------|
| Description: Bushing | Part Number: | D3501-1 |
| Inspection Dwg: D3501 Rev: A | | Page 1 of 1 |

| | | RTICLE INSP First Article | | rototyp | | | . • |
|----------------------|---------------|------------------------------|--------|---------|----------------------|-----|--------|
| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Со | mments |
| 0.850 | +/-0.010 | 0.847 | | | mic l" | TIT | -1 |
| 0.060 | +/-0.005 | 0.060 | | | | | |
| Ø0.750 | +0.008/-0.001 | 0.747 | | | | | |
| Ø0.257 | +0.005/-0.000 | 0.258 | | | venn | OI | -4 |
| Ø0.472 | +0.000/-0.002 | 0.4713 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | DAS | | DAS- | | | | |
| easured by: | D 02 A | udited by: | 9-89 | Pro | totype Approv | al: | N/A |
| Date: / | 1.07-30 | Date: 기시 | -08-05 | | Dat | te: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------|------------|----------|
| Α | 06.10.27 | New Issue | KJ/JLM ox | |

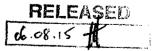


| | DESIGN | DRAWN BY | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
|---|-----------|------------|--|----|
| Г | CHECKED / | APPROVED M | DRAWING NO. REV. | Ā |
| | # | M | D3501 SHEET 1 OF | 1 |
| Г | DATE | | TITLE SCAL | E |
| | 06.04.18 | | BUSHING 1 | :1 |
| | Α | 06.04.18 | NEW ISSUE | |



D3501-1 BUSHING

- MATERIAL: AISI 303 SS (REF DART SPEC. M303R)
- 2) FINISH: NONE
- 3) BREAK ALL UNMACHINED SHARP CORNERS 0.010 MAX
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES



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